

# Work Order ID 124883

**\*124883\***

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Thursday, September 25, 2014 1:07:35 PM

Item ID: D206-667-103RLC \* Accept **\*N900040100\*** Setup Start **\*NS1\***  
 Revision ID: Stop **\*NS2\***  
 Item Name: Fwd Crosstube - High 206L / L1 / L3 / L4  
 Start Date: 9/25/2014 Start Qty: 1.00 **\*1\*** Cust Item ID:  
 Required Date: 9/25/2014 Req'd Qty: 1.00 **\*1\*** Customer:  
 Reference:

Approvals: Process Plan: MUS Date: 14-09-25 Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D206-667-143	Rev C (DEO)								
DSI9565	A								
DSI9628	A								

100 Document Control 0.00  
**\*100\*** DOCUMENT CONTROL  
 DC Memo 0.00  
 Doc.Control -USB or Paperwork Photocopy bluefile and create labels as per PPP D206-667-103 CHG006  
 OCT 22 2014  
 K MUS 14-10-21

110 Pick Kit 0.00  
**\*110\*** Packaging  
 Packaging Memo 0.00  
 JW 14-10-03

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Item ID: D206-667-103RLC Accept \*N900040100\* Setup Start \*NS1\*  
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 Required Date: 9/25/2014 Req'd Qty: 1.00 \*1\* Customer:  
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Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start \*NR1\*  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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120

\*120\*

CNC Bend 2

CNC Alpha 160 Bender

BENDING MACHINE - CROSSTUBES

Memo

Bend tube as per Dwg D206-667-143 using CNC bender program

0.00

0.00

*JW* 14-10-03

130

\*130\*

QC

Quality Control

QC15- Crosstube Dimensional Check

Memo

0.00

0.00

*(D)*

DAS  
38  
9-89

14-10-3

DAS  
16  
9-89

14/10/03



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Item ID: D206-667-103RLC

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Fwd Crosstube - High 206L / L1 / L3 / L4

Start Date: 9/25/2014 Start Qty: 1.00 **\*1\***

Cust Item ID:

Required Date: 9/25/2014 Req'd Qty: 1.00 **\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***  
Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	Crosstubes	0.00							
<b>*140*</b>									
Crosstubes									
Crosstubes	<p><b>Memo</b></p> <p>***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING***** VERIFIED BY: <u>JW</u> *****</p> <p>1- Drill holes &amp; ream using drill Jig DT8541 &amp; DT8542 as per Dwg D206-667-143. Drill all (3) top holes. Holes facing inboard.</p> <p>***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING***** VERIFIED BY: <u>JW</u> *****</p> <p>2- Drill Fwd rivet holes using drill Jig DT8787 fwd as per Dwg D206-667-143. Note: Fwd side has 3x top holes. Facing inboard.</p> <p>3- C'sink holes as per Dwg D206-667-143. Allow rivet to sit below surface to compensate for paint.</p> <p>4- Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins. Drill ONLY 2 top holes ONLY plug most bottom holes to prevent accidental drilling. Drill holes and ream using drill Jig DT8541 &amp; DT8542 as per Dwg D206-667-143. Drill only the top (2) holes.</p> <p>***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING***** VERIFIED BY: <u>JW</u> *****</p> <p>5- Drill Aft rivet holes using drill Jig DT8787 aft as per Dwg D206-667-143.</p> <p>***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING***** VERIFIED BY: <u>JW</u> *****</p>	0.00							

BL / DAS 14-10-06  
46  
9-89

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Item ID: D206-667-103RLC

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID:

Item Name: Fwd Crosstube - High 206L / L1 / L3 / L4

Stop **\*NS2\***Start Date: 9/25/2014 Start Qty: 1.00 **\*1\***

Cust Item ID:

Required Date: 9/25/2014 Req'd Qty: 1.00 **\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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6- C'sink holes as per Dwg D206-667-147. Allow rivet to sit below surface to compensate for paint.

7- Scribe part # and batch # using vibrating stylus as per Dwg D206-667-143  
Inside of Cuff (Do not engrave on outside of tube)8- \*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\* Deburr  
& Inspect for surface damage. Repair damage within limits as per Dwg D206-667-143DAS  
**46**  
9-89

14/10/06

150

QC5- Inspect part completeness to step on W/O 0.00

**\*150\***

QC

Memo 0.00

Quality Control

\*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\*

DAS  
**38**  
9-89

14-10-6

160

0.00

**\*160\***

HandFXtube

Memo 0.00

Hand Finishing Crosstubes

\*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\*

DAS  
**41**  
9-89

14-10-6

1- Clean crosstube with wash'n wipe

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Item ID: D206-667-103RLC Accept **\*N900040100\*** Setup Start **\*NS1\***  
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 Start Date: 9/25/2014 Start Qty: 1.00 **\*1\*** Cust Item ID:  
 Required Date: 9/25/2014 Req'd Qty: 1.00 **\*1\*** Customer:  
 Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180	Outsource process - NDT per QSI038 4.1	0.00							
<b>*180*</b>									
Outsource2	Memo	0.00							
Outsource process - NDT	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***								
	Liquid Penetrant Inspection as per QSI 038Or Issue P/O: <u>26038</u> LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order								
190		0.00							
<b>*190*</b>									
Packaging	Packaging	0.00							
Packaging	Memo	0.00							
Packaging	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***								
	Ensure copy of NDT results attached to work order.								
200	QC5- Inspect part completeness to step on W/O	0.00							
<b>*200*</b>									
QC	Memo	0.00							
Quality Control	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***								

CL 14/10/07 ①

1x SP 14-10-8.

DAS  
38  
9-89 19-10-8

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Item ID: D206-667-103RLC

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID:

Item Name: Fwd Crosstube - High 206L / L1 / L3 / L4

Stop **\*NS2\***Start Date: 9/25/2014 Start Qty: 1.00 **\*1\***

Cust Item ID:

Required Date: 9/25/2014 Req'd Qty: 1.00 **\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

204

0.00

**\*204\***

HandFXtube

Memo

0.00

Hand Finishing Crosstubes

\*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\*

1- PRESSURE WASH AND THEN USE WASH'N WIPE TO CLEAN  
CROSSTUBE BEFORE CHEMICAL CONVERSION

BL

14-10-08

206

QC7-Inspect Chemical Conversion Coat

0.00

**\*206\***

QC

Memo

0.00

Quality Control

\*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\*

1

DAS  
38  
9-88

14-10-8

# Work Order ID 124883

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Item ID: D206-667-103RLC Accept **\*N900040100\*** Setup Start **\*NS1\***  
 Revision ID: Stop **\*NS2\***  
 Item Name: Fwd Crosstube - High 206L / L1 / L3 / L4  
 Start Date: 9/25/2014 Start Qty: 1.00 **\*1\*** Cust Item ID:  
 Required Date: 9/25/2014 Req'd Qty: 1.00 **\*1\*** Customer:  
 Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210	SprayPaint	0.00							
<b>*210*</b>									
SprayPaint	Memo	0.00							
Spray Painting	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***								
	*** MASK AREA UNDER CLAMP PRIOR TO PAINTING AS PER DWG DEO***								
	1-Prime inside and outside crosstube as per QSI 005 4.2								
	2-Paint outside crosstube with White Imron as per QSI 005 4.2								
	PRIME: <u>130 128</u>								
	Start Time: <u>11:00</u>								
	Finish Time: <u>11:30</u>								
	PAINT: <u>124 977</u>								
	Start Time: <u>4:00</u>								
	Finish Time: <u>4:30</u>								
220	QC14- Inspect Spray Paint	0.00							
<b>*220*</b>									
QC	Memo	0.00							
Quality Control	Wrap in plastic bag to protect from scratches								

DAS  
51  
9-89

14/10/20

DAS  
38  
9-89



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**Item ID:** D206-667-103RLC

**Accept**

**\*N900040100\***

**Setup Start \*NS1\***

Revision ID:

**Item Name:** Fwd Crosstube - High 206L / L1 / L3 / L4

Stop \*NS2\*

**Start Date:** 9/25/2014      **Start Qty:** 1.00      **\* 1 \***

**Cust Item ID:**

**Required Date:** 9/25/2014      **Req'd Qty:** 1.00      **\*1\***

**Customer:**

**Reference:**

**Approvals:**      **Process Plan:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Tooling:** \_\_\_\_\_ **Date:** \_\_\_\_\_  
**QC:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **SPC (Y/N):** \_\_\_\_\_ **Date:** \_\_\_\_\_

Run Start \*NR1\*

Stop \*NR2\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/  
Work Center ID

### Operation Description

### Set Up/ Run Hours

**Tool ID****Tool #****Plan  
Code**

**Accept  
Qty**

Reject  
Qty

### Reject Number

**Insp.  
Stamp**

230

**\*230\***

## Crosstubes

## Crosstubes

## Crosstubes

## Memo

0.00

INSTALL GROUNDING CLAMP AND SEAL WITH SIKAFLEX AS PER  
DWG AND DEO

A/R SIKAFLEX BATCH: 130227

exp 2/15

1-Abrade mating surfaces of support and crosstube with 180 grit sandpaper, clean the area with MEK or equivalent as per dwg

2-Install supports with Proseal 890 per D206-667-143 (DEO) and QSI 015

A/R Proseal 890 Batch: 130 090  
EXP: 1/18

EXP: 2/15

3-Install supports clamps Using Dt9565 as per Dwg D206-667-143

(DEO), Torque to 80-100 IN-LBS.

PROSEAL CURE TIME 72 HOURS:

Start: 14.10.17

Finish: 14:10:20

4-Install nut plates as per Dwg D206-667-143. Touch-up rivet heads with Imron paint.

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 Required Date: 9/25/2014 Req'd Qty: 1.00 **\*1\*** Customer:  
 Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
240	QC5- Inspect part completeness to step on W/O	0.00							
<b>*240*</b>						DAS <b>51</b> 9-89		14/10/2014	DAS <b>38</b> 9-89
QC	Memo	0.00							
Quality Control	***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED FOR 72HOURS AS PER DWG.***								
	***VERIFY RESISTANCE PER NOTE 18 AND DWG DEO***								
250	Pick Kit	0.00							
<b>*250*</b>						1X	DAS <b>28</b> 9-89	OCT 22 2014	
Packaging	Memo	0.00							
Packaging									
260	QC4- 100% Inspect kits for completeness	0.00							
<b>*260*</b>									OCT 22 2014
QC	Memo	0.00				DAS <b>05</b> 9-89			
Quality Control						1X			

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Item ID: D206-667-103RLC

Accept

**\*N900040100\***

Setup Start

**\*NS1\***

Revision ID:

Item Name: Fwd Crosstube - High 206L / L1 / L3 / L4

Stop

**\*NS2\***

Start Date: 9/25/2014 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 9/25/2014 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

**\*NR1\***

Stop

**\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
270		0.00							
<b>*270*</b>	Packaging								
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D206-667-103 Location: _____ PPP Rev: _____								
280	QC21- Final Inspection - Work Order Release	0.00							
<b>*280*</b>									
QC	Memo	0.00							
Quality Control									

OCT 27 2014

DAS

03

9-89

14/10/28

14-10-28

# Picklist Print

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Work Order ID: 124883

**\*124883\***

Parent Item: D206-667-103RLC

**\*D206-667-103RLC\***

Parent Item Name: Fwd Crosstube - High 206L / L1 / L3 / L4

Start Date: 9/25/2014

Required Date: 9/25/2014

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A 14.09.23 NEW ISSUE LL VERF:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D206-667-103TRN		Manufactured	No			110	Each	4.0000	1	1			
<b>*D206-667-103TRN*</b>													
Crosstube Turning Detaill													

B107457

Location	Loc Qty	Loc Code
LG014	4	
107457	1	
107458	1	
116472	1	
116473	1	

D2873-043

Manufactured No

230 Each 44.0000 2

**\*D2873-043\***

Nut Plate Assembly

Location	Loc Qty	Loc Code
LG052	44	
107964	4	
113050	32	
114550	8	

D2873-045

Manufactured No

230 Each 47.0000 2

**\*D2873-045\***

Nut Plate Assembly

Location	Loc Qty	Loc Code
LG052	47	
113144	7	
113886	40	

14-10-20

CR 14-10-08

CR 14-10-08

# Picklist Print

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Work Order ID: 124883

**\*124883\***

Parent Item: D206-667-103RLC

**\*D206-667-103RI C\***

Parent Item Name: Fwd Crosstube - High 206L / L1 / L3 / L4

Start Date: 9/25/2014

Required Date: 9/25/2014

Start Qty: 1.00

Required Qty: 1.00

D2891-1 Manufactured No

230 Each 34.0000 2 2

**\*D2891-1\***

Support 2.25

**\*\***

Location	Loc Qty	Loc Code
FG	2	
84164	2	
LG014	22	
113044	1	
114948	21	
LG052	10	
120972	10	

~~14.10.10~~  
CR 14.10.16  
14.10.16

D3595-063-395 Manufactured No

230 Each 217.0000 4 4

**\*D3595-063-395\***

Rubber Cushion

**\*\***

Location	Loc Qty	Loc Code
FG	5	
87353	5	
LG051	212	
110958	6	
114243	6	
115027	100	
115737	100	

CR 14.10.16

RUBBER CUSHION .63" x 3.95" (4)

MS20601-AD4W8

Purchased No

230 Each 421.0000 14 14

**\*MS20601-AD4W8\***

RIVET

**\*\***

Location	Loc Qty	Loc Code
ST310	421	
M126637	24	
M127813	24	
M128429	73	
M128650	300	

CR 14.08.10

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# Picklist Print

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**\*D206-667-103RLC\***

Parent Item Name: Fwd Crosstube - High 206L / L1 / L3 / L4

Start Date: 9/25/2014

Required Date: 9/25/2014

Start Qty: 1.00

Required Qty: 1.00

MS21920-20

Purchased

No

230

Each

223.0000

4

4

**\*MS21920-20\***

Clamp

**\*\***

CL 14.10.16

Location

Loc Qty

Loc Code

FG

2

122254

2

LG050

221

m126266

1

m127225

4

m128429

1

m128650

215

4

AN970-4

Purchased

No

250

Each

531.0000

12

12

**\*AN970-4\***

Washer

**\*\***

DAS

28

9-89

OCT 22 2014

Location

Loc Qty

Loc Code

ST329

400

m129521

400

ST508

131

m127815

131

12x

D206-667-017

Manufactured

No

250

Each

9.0000

1

1

**\*D206-667-017\***

Ground Strap Installation

**\*\***

DAS

41

9-89

14-10-18

Location

Loc Qty

Loc Code

FG

2

102581

2

LG050

7

107968

5

97504

2

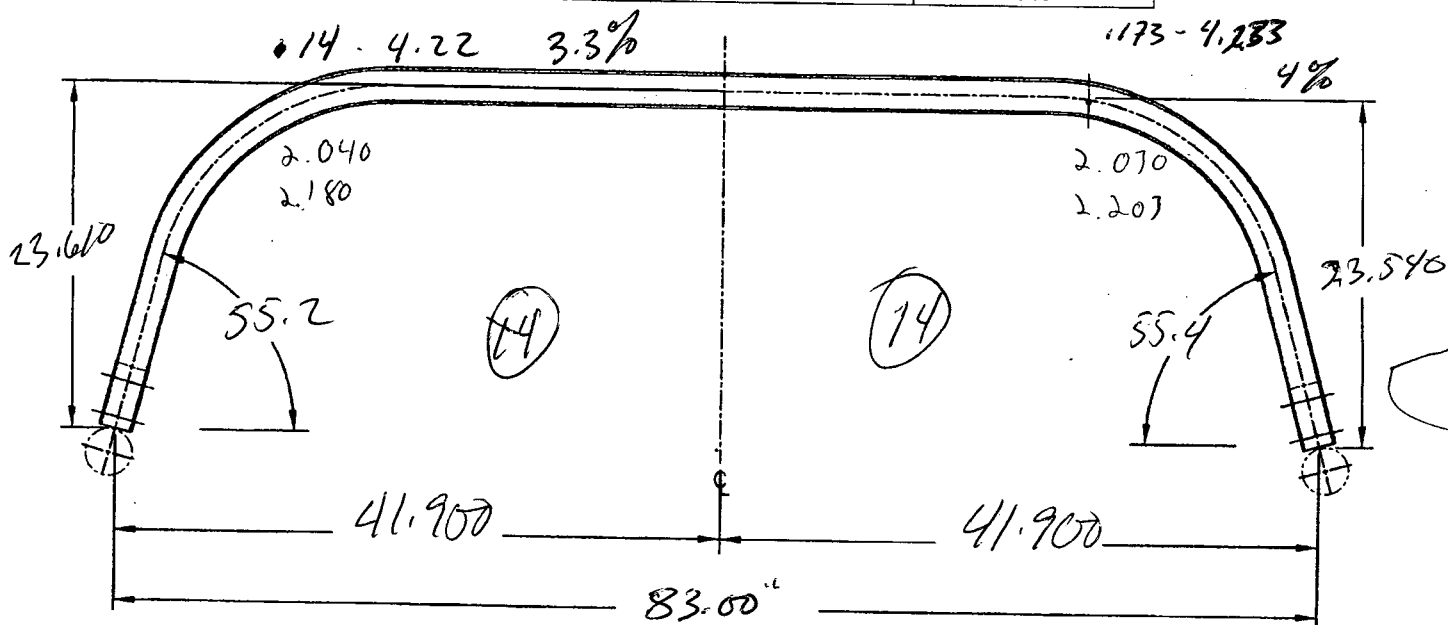
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<b>DART AEROSPACE LTD</b>		<b>Work Order:</b>	124883
<b>Description:</b> Crosstube High Fwd (206L)		<b>Part Number:</b>	D206-667-103
<b>Inspection Dwg:</b> D206-667-143	<b>Rev:</b> C	<b>Page 1 of 1</b>	

Required Dimension	Min	Max
Height	23.39	23.65
1/2 Span	41.79	42.05
Angle	54	56
Total Span	83.58	84.10
Bending Passes	10	--
Crushing	--	6%



	Side A	Side B
Bending Passes	14	14
Crushing	3.3%	4.2%
Comments		
Side A	3.3% crushing @	14 passes
Side B	4.2% crushing @	14 passes

QC15 Inspection	DAS	DAS
Date	9-89	16
	14-10-3	3-89 14/10/03

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.06.26	Dimensions updated per Dwg Rev C	KJ	
C	09.10.22	Minimum height dimension revised	KJ	
D	12.04.16	Added bending, crushing dimensions	KJ	

Item	Qty -143	Part Number	Description
1	X	D206-667-143	CROSSTUBE ASSEMBLY (206L HIGH FWD)
2	1	D6002-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

# GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6002-115  
FINISHED LENGTH = 104.98±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-143" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 15.5 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 124883 MLC

14-09-23

ocw #11-615  
11.07.26

UNDER REVIEW

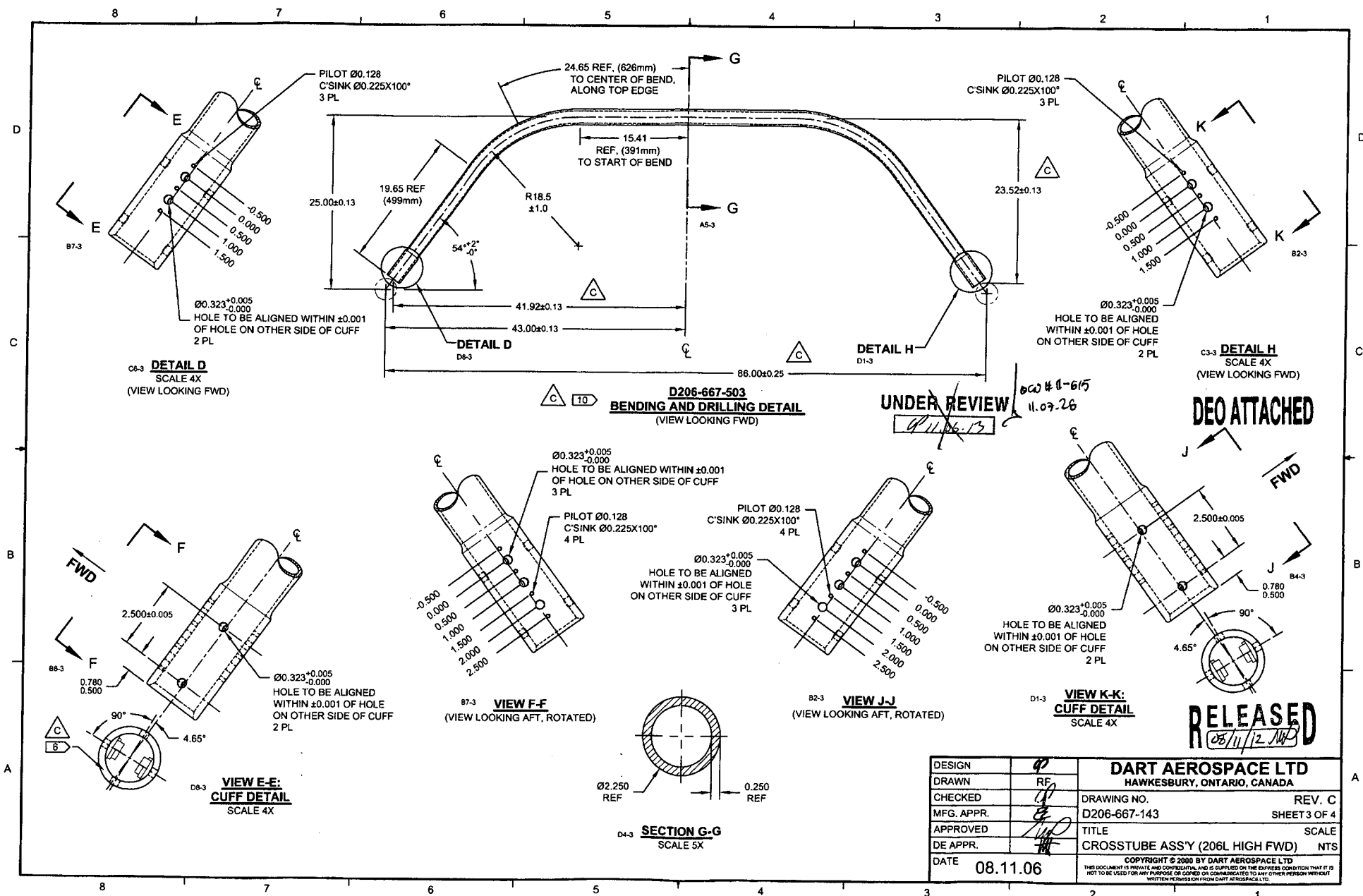
01/11/2013

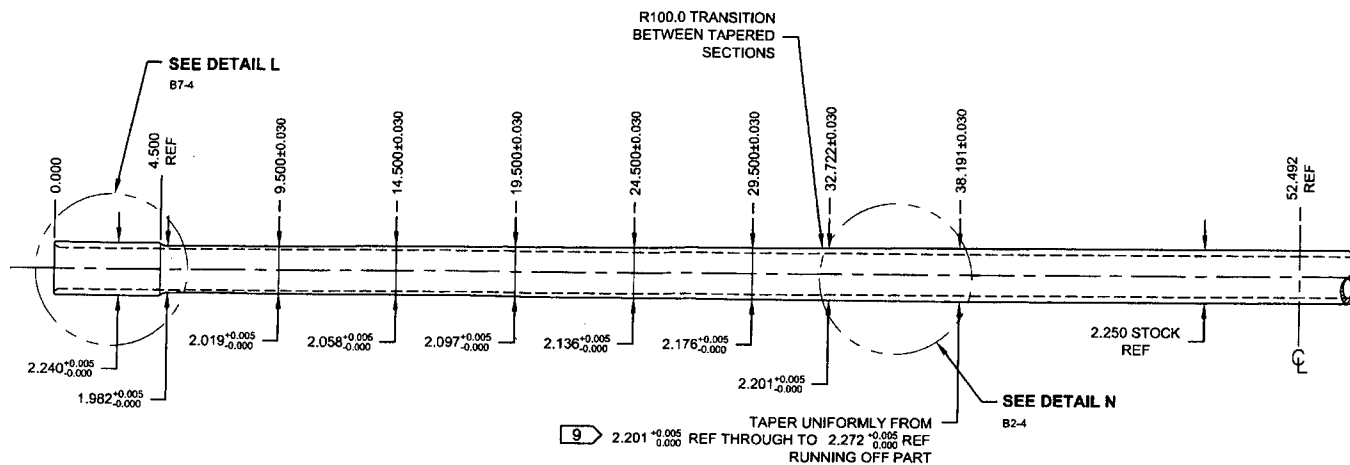
DEO ATTACHED RELEASED  
08/11/12 MLC

C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2856-400-694 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCE (ZN D3-3, C4-3, C5-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO. D206-667-143	REV. C SHEET 1 OF 4
CHECKED	RF	TITLE CROSSTUBE ASSY (206L HIGH FWD)	SCALE NTS
MFG. APPR.	RF	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
APPROVED	RF	DATE 08.11.06	
DE APPR.	RF		









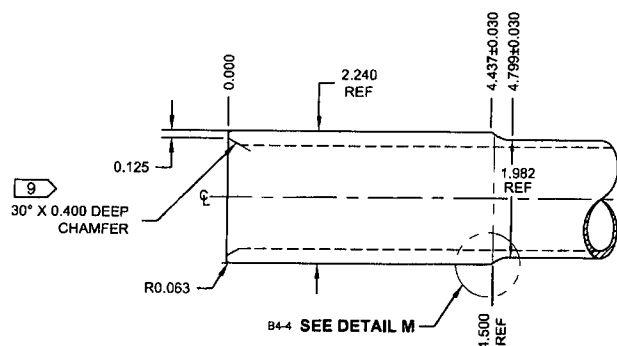
REC'D #1-615  
11.07.26

UNDER REVIEW

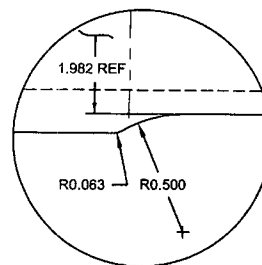
08/11/12

DEO ATTACHED

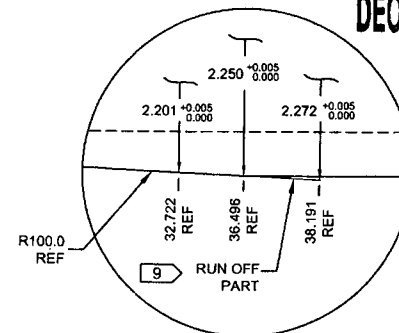
**TURNING DETAIL**



**DETAIL L:  
CROSSTUBE CUFF**  
NOT TO SCALE



**DETAIL M:  
CUFF TRANSITION**  
NOT TO SCALE



**DETAIL N:  
TAPER RUN-OFF**  
NOT TO SCALE

RELEASED  
08/11/12

DESIGN	90	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	CP	DRAWING NO.	REV. C
MFG. APPR.	CP	D206-667-143	SHEET 4 OF 4
APPROVED	CP	TITLE	SCALE
DE APPR.	CP	CROSSTUBE ASS'Y (206L HIGH FWD)	NTS
DATE	08.11.06	COPYRIGHT © 2009 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

DRAWING NO. D206-667-143	TITLE CROSSTUBE ASS'Y (206L HIGH FWD)	REV. C	<b>DART AEROSPACE LTD ENGINEERING ORDER</b>		D.E.O. NO. D206-667-143-C-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>92</i>	CHECKED <i>ASS</i>	MFG. APPR. <i>128</i>	APPROVED <i>MD</i>		DE APPR. <i>##</i>		
DATE 11.07.15	DATE 11.07.20	DATE 11.07.21	DATE 11/07/21		DATE 11.07.21		

**PURPOSE:**

REPLACE MAGNOBOND WITH PROSEAL.

**CHANGE:**

IS:

Item	Qty -143	Part Number	Description
9	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

WAS:

9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
---	-----	----------------	---

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 12) TO INSTALL D2891-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. **PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.**

WAS:

- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.08" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

**RELEASED**  
2011-07-28  
*WMD*

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DRAWING NO. D206-667-143		TITLE CROSSTUBE ASS'Y (206L HIGH FWD)		REV. C DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D206-667-143-C-2		SHEET NO. SHEET 1 OF 1		SCALE NTS	
DRAWN AJS		CHECKED		MFG. APPR. <i>E</i>		APPROVED <i>NO</i>		DE APPR. <i>TH</i>			
DATE 12.08.02		DATE 12.08.02		DATE 12.08.02		DATE 12.08.02		DATE 12-08-02			

**PURPOSE:**

ADD ELECTRICAL GROUNDING STRAP

**CHANGE:**

**PARTS LIST:**

ITEM	QTY -143	PART NUMBER	DESCRIPTION
1	X	D206-667-143	CROSSTUBE ASSEMBLY (206L HIGH FWD)
10	2	AN742D36	CLAMP
11	2	MS9165-05	ANGLE BRACKET
12	2	MS21042L3	NUT (OR MS21042-3)
13	2	MS27039-1-08	SCREW
14	4	NAS1149C0332R	WASHER (OR AN960C10L)

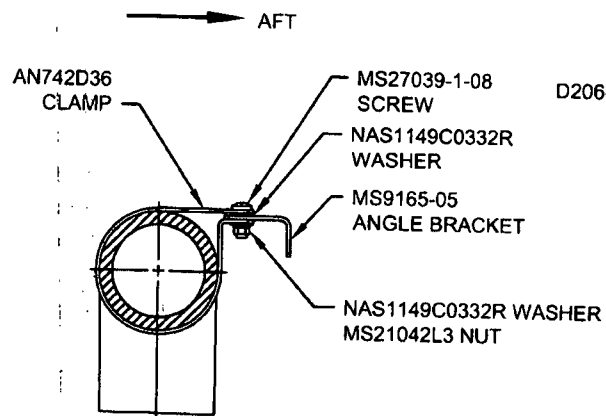
ADD

**GENERAL NOTES:**

- 16) MASK AREA UNDER CLAMP PRIOR TO PAINTING
- 17) SEAL EDGES WHERE AN742D36 CLAMP MEETS WITH THE CROSSTUBE USING SIKAFLEX-241/-291 OR MIL-S-8802 CLASS B2 OR PROSEAL 890 SEALANT
- 18) PERFORM RESISTANCE CHECK TO ENSURE MAX RESISTANCE IS 10 MILLIOHMS

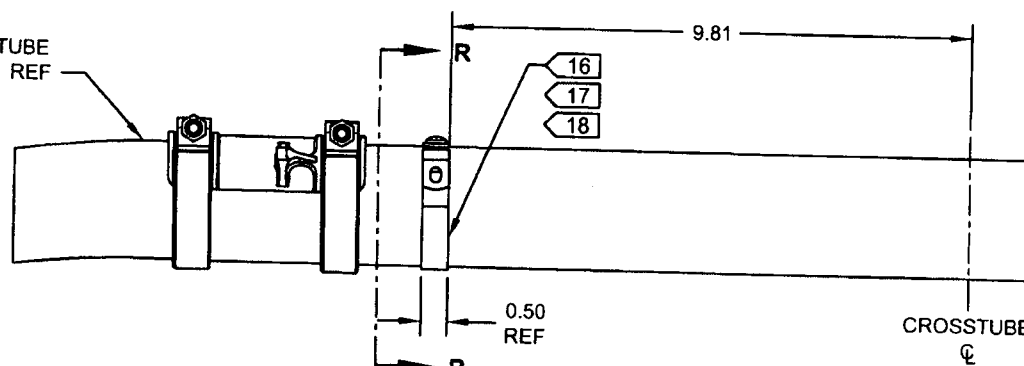
ADD

**RELEASED**  
12.08.17  
ECN 12-631



**SECTION R-R**

D206-667-503 CROSSTUBE REF



**DETAIL P**  
BONDING STRAP INSTALLATION 2 PL

# DART SERVICE INSTRUCTION

TO AMEND INSTRUCTIONS FOR CONTINUOUS AIRWORTHINESS ICA-D206-667 Rev. 3 OR LATER  
REF. CANADIAN STC: SH01-5  
REF. FAA STC: SR01304NY  
REF. EASA STC: EASA.IM.R.S.01179

## PURPOSE:

The supports on the following crosstubes are now installed using Proseal instead of Magnobond:

D206-667-101 @ CHG 004  
D206-667-103 @ CHG 005  
D206-667-107 @ CHG 002  
D206-667-201 @ CHG 004

D206-667-203 @ CHG 004  
D206-667-207 @ CHG 002  
D407-667-105 @ CHG 004

## CHANGE:

For the crosstubes listed above, section 32.4 of ICA-D206-667 is amended as follows. Use Figures 32-4 to 32-8 of ICA-D206-667 for further reference. For crosstubes of an earlier change number, it is recommended that if the supports are removed, the supports should be reinstalled using the procedure listed below.

### 32.4 SUPPORT INSTALLATION





- 32.4.1 Locate the area on crosstube for installation of support (ref. Figures 32-4 to 32-8 of ICA-D206-667). For D206-667-101/-103/-107/-201 and D407-667-105 crosstubes, the outward face of the support tabs should be 13.08" (332mm) from the crosstube center. For D206-667-203/-207 crosstubes, the outward face of the support tabs should be 10.03" (255mm) from the crosstube center. Ensure paint finish of crosstube is intact; touch up as required per Chapter 5 (5.3.9) of ICA-D206-667.
- 32.4.2 If present, remove any paint/primer on bottom of supports. Abrade mating surfaces of support and crosstube with 400-grit sandpaper. Saturate a clean cloth with MEK or 4105S Wash'n'Wipe Degreaser or equivalent and wipe until there is no residue.
- 32.4.3 Ensure a layer of 3M Scotch-Weld 2216 B/A Epoxy Adhesive is on the bottom of the support. If required, either apply or touch-up support to have a 0.03" to 0.05" thick layer of adhesive over the entire mating surface. Allow supports to cure for 24 hours.
- 32.4.4 Abrade mating surfaces of support (after cure) and crosstube with 180-grit sandpaper. Saturate a clean cloth with MEK or 4105S Wash'n'Wipe Degreaser or equivalent and wipe until there is no residue.
- 32.4.5 Apply a 0.04" to 0.07" thick layer of Proseal 890 Class B or AMS-S-8802 Class B sealant underneath applicable support and install support.
- 32.4.6 Install the clamps opposite to crosstube support as shown in Figures 32-4 to 32-8 of ICA-D206-667. Install rubber cushions underneath each clamp around the bottom circumference of the crosstube up to the crosstube centerline. Torque clamps 80-100 in-lb (9.0-11.3 Nm). It is acceptable to use smaller or larger sized MS21920-XX clamps than those listed in ICA-D206-667, ensure that after torquing the clamps per this instruction, the nuts are in safety but not bottomed out.
- 32.4.7 Prior to installing crosstube on aircraft, allow supports to cure for 72 hours and recheck torque on clamps.

CANADA  
DEPARTMENT OF TRANSPORT  
AIRCRAFT CERTIFICATION  
BRANCH  
DAO # 01-O-01

APPROVED

BY:   
D. SHEPHERD (DE # 02)

DATE: 11.07.20  
CERT. NO.: SH01-5  
ISSUE NO.: 3

A	NEW ISSUE	CP	11.07.15
REV.	DESCRIPTION	BY	DATE
DESIGN		<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN			
CHECKED	ASS	DRAWING NO.	REV. A
MFG. APPR.	N/A	DSI 9565	SHEET 1 OF 1
APPROVED		TITLE	SCALE
DE APPR.		SUPPORT INSTALLATION CHANGE	NTS
DATE	11.07.15	COPYRIGHT © 2011 BY DART AEROSPACE LTD <small>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

# DART SERVICE INSTRUCTION

TO AMEND INSTALLATION INSTRUCTIONS IIN-D206-667 REV. D AND EARLIER AND  
INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA-D206-667 REV. 3 AND EARLIER

REF: CANADIAN STC: SH01-5

REF: FAA STC: SR01304NY

REF: EASA STC: EASA.IM.R.S.01179

## PURPOSE:

The purpose of this service instruction is to permanently add the D206-667-017 Kit to the DXXX-667-101/-103/-105/-107 Crosstube kits.

## INSTRUCTIONS:

DXXX-667-101/-103/-105/-107 Crosstubes at CHG 005/006/005/003 (respectively) and later are supplied with the D206-667-017 Grounding Strap Kit installed per section 3.2 of IIN-D206-667 Rev. D.

## WEIGHT AND BALANCE




There is a negligible weight change associated with the installation of this kit.

CANADA  
DEPARTMENT OF TRANSPORT  
AIRCRAFT CERTIFICATION  
BRANCH  
DAO # 01-O-01

### APPROVED

BY:   
D. SHEPHERD (DE # 02)

DATE: 12.08.02  
CERT. NO.: SH01-5  
ISSUE NO.: 3

A	NEW ISSUE (REF CIR 12-3)	AJS	11.08.02
REV.	DESCRIPTION	BY	DATE
DESIGN	AJS	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED		DRAWING NO.	REV. A
MFG. APPR.	N/A	DSI 9628	SHEET 1 OF 1
APPROVED		TITLE	SCALE
DE APPR.		GROUNDING STRAP INSTALLATION	NTS
DATE	12.08.02	COPYRIGHT © 2012 BY DART AEROSPACE LTD <small>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

**D206-667-103 bending folio**

**Batch Number:**

2.25 rollers x 3 + 1.6 shims under rollers  
buggie shims 3.125" (new buggy), buggy goes on small table/adjust supporting rollers as required.  
Lines: **19.75"** and **37.125"** from cuffs.  
\*Only Buggy A used\*

**STEP 1**

Run programs 1-2-3-4 starting from **37.125** line with longest part of tube on **small table**, Y1630 / W3200 programs run down taper.

\*\*Approach will automatically set itself after Prog.4 for Prog.10-11-12 .....Make sure laser falls properly on tangent line.\*\*

**STEP 2**

Run programs 10-12 from **19.75"** line CHECK BETWEEN EACH PROGRAM Y3400 / W3344 .  
Programs run up taper. Ensure buggy clears table. **small table**

Approaches for prog 13 up are done automatically when program returns to tangent line, helper is to ensure that tangent line falls properly on laser

**FOR SIDE B.....MAKE SURE BUGGY DOES NOT TOUCH EDGE OF BENDER TABLE**

09-10-14 bent two tubes first one took Side A prog 13 x2.....Side B prog 12B ( over bent ) was missing 100 thou .from 12A to 12B 10 points last two lines  
second tube Side A prog 13..... Side B prog 12

11-06-08 ran 2 tubes, first tube finished @ program 16 both sides, second finished @ 15 both sides. both tubes bent very evenly on each side. after bending according to folio, both tubes ran 12a,13,14,15. one tube required program 16 to finish. JW

12-08-1 ran 2 tubes according to previous note. stopped checking tube at prog 10-11-12. ran: 1,2,3,4,10,11,12, check. ran 12a,13,14,15 checking in between each. tube was nice, even, and tubes finished at either 15 or 16. consistent with previous note. JW

**Passes:**

1	1
2	2
3	3
4	4
10	10
11	11
12	12
12a	12a
13	13
14	14
15	15
16	16







**skyservice**  
Air travel. Evolved.

# NDT Work Order

Sky Service F.B.O. Inc.

DOT APP 53-89 / EASA 145.7142 / BDA AMO 33

WO #: YYZ

70295

Customer: DART AEROSPACE

Dept: NDTYYZ

Reference: 26038

Make:

Model:

Reg:

A/C S/N:

TSN:

CSN:

TSO:

Tail#:

Task: ☒ Scheduled ☐ Unscheduled ☐ A.O.G. ☒ P.T. ☐ M.T. ☒ E.T. ☐ U.T. ☐ F

## Work Required:

CARRY OUT NDT ON THE FOLLOWING ITEMS:

① ITEM ID = D206667-103RLC FWD CROSS TUBE

WORK ORDER ID'S - 124882, 124883

② ITEM ID = D407-667-105RLC FWD CROSS TUBE

WORK ORDER ID'S - 124886, 124887, 124888

③ ITEM ID = D4806-3 STUD - WORK ORDER ID 121492

Action Taken:

Date:

Initial/Stamp:

LIQUID PENETRANT AND EDDY CURRENT

INSPECTIONS CARRY OUT WHERE

07 OCT 2014



APPLICABLE ON ITEMS LISTED ABOVE

NO CRACKS FOUND

EDDY CURRENT = NORTEL 500S, S/N T-20656 CAL DAB-30 JAN/

PENETRANT = ARDROX 970 P2SE

BATCH

823/2131

BLACK LIGHT = T-20990M

I certified that the maintenance described above has been performed with the applicable standard of airworthiness.

Signature:

ACA/SCA Stamp

Date:

Name:

GARY SMITH



07 OCT  
2014



Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

# PURCHASE ORDER

Purchase Order ID **PO26038**

Purchase Order Date 10/7/2014

PO Print Date 10/7/2014

Page Number 2 of 3

**Order From :**

VC-SKY001

SKYSERVICE  
6120 MIDFIELD ROAD  
MISSISSAUGA, ONTARIO L5P 1B1  
CANADA

**Ship To :** DART AEROSPACE LTD

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

**Contact Name**

**Vendor Phone** 905-678-5636

**Ship To Contact**

**Ship To Phone**

**Ship Via:** Delivered

**Ship Acct:**

**Buyer**

**Customer POID**

**Customer Tax #** 10127-2607

**Terms** Net 30

**Currency** CAD

**FOB** FCA - (Free Carrier)

3	124883	D206-667-103RLC CROSSTUBE	10/7/2014	1.00	\$0.00	\$0.00
---	--------	------------------------------	-----------	------	--------	--------

Yes  
10/7/2014

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR  
LPI AS PER ASTM 1417 LEVEL 2

**Line Total:** \$0.00

4	124882	D206-667-103RLC CROSSTUBE	10/7/2014	1.00	\$0.00	\$0.00
---	--------	------------------------------	-----------	------	--------	--------

Yes  
10/7/2014

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR  
LPI AS PER ASTM 1417 LEVEL 2

**Line Total:** \$0.00

5	124886	D407-674-105RLC CROSSTUBE	10/7/2014	1.00	\$0.00	\$0.00
---	--------	------------------------------	-----------	------	--------	--------

Yes  
10/7/2014

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR  
LPI AS PER ASTM 1417 LEVEL 2

**Note:**

10/7/2014